

AMENDMENTS TO THE CLAIMS:

Please amend claims 7, 9, 11-13, 15-19, 22 and 23, as shown below. Please add new claims 24-30.

This listing of claims will replace all prior versions and listings of claims in the Application:

Claim 1-6 (canceled)

Claim 7 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises two transistors having their gates directly connected together.

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Claim 8 (previously presented): The variable drive current driver circuit according to claim 7, wherein

said control circuit controls whether said second bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said second bias current driven by said fourth current source flows from said push-pull circuits.

Claim 9 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors having their gates directly connected together.

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Claim 10 (previously presented): The variable drive current driver circuit according to claim 9, wherein

said control circuit controls whether said second bias current driven by said third current source flows to said pair of push-pull circuits, and
said control circuit controls whether said second bias current driven by said fourth current source flows from said push-pull circuits.

Claim 11 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;
a first current source circuit for having a first bias current flow to said pair of push-pull circuits;
a second current source circuit for having a second bias current flow from said pair of push-pull circuits;
a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;
a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and
a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises two transistors having their gates directly connected together.

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Claim 12 (currently amended): The variable drive current driver circuit according to claim 11, wherein

 said control circuit controls whether said third bias current driven by said third current source flows to said pair of push-pull circuits, and

 said control circuit controls whether said fourth bias current driven by said third fourth current source flows from said push-pull circuits.

Claim 13 (currently amended): [[The]] A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal.

 wherein said control signal is independent of drain voltages of the first to fourth current source circuit circuits and independent of an input signal.

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Claim 14 (previously presented): The variable drive current driver circuit according to claim 7,

wherein said first bias current is a constant current.

Claim 15 (currently amended): [[The]] A variable drive current driver circuit according to claim 7, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein said second bias current is a constant current.

Claim 16 (currently amended): [[The]] A variable drive current driver circuit according to claim 9, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

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a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said control signal is independent of drain voltages of the first to fourth current source circuit circuits and independent of an input signal.

Claim 17 (currently amended): [[The]] A variable drive current driver circuit according to claim 9, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

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a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said first bias current is a constant current.

Claim 18 (currently amended): [[The]] A variable drive current driver circuit according to claim 9, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

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a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors,
and

wherein said second bias current is a constant current.

Claim 19 (currently amended): [[The]] A variable drive current driver circuit according to claim 11, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;
a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein said control signal is independent of drain voltages of the first to fourth current source ~~circuit~~ circuits and independent of an input signal.

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Claim 20 (previously presented): The variable drive current driver circuit according to claim 11,

wherein said first bias current is a constant current.

Claim 21 (previously presented): The variable drive current driver circuit according to claim 11,

wherein said second bias current is a constant current.

Claim 22 (currently amended): [[The]] A variable drive current driver circuit ~~according to~~ claim 11, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein said third [[bias]] current is a constant current source circuit provides a constant current; and

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wherein said control signal determines a third bias current, and once said third bias current is determined, said third bias current is constant.

Claim 23 (currently amended): [[The]] A variable drive current driver circuit according to claim 11, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein said fourth [[bias]] current [[is]]source circuit provides a constant current.

Claim 24 (new): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

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a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors having their gates directly connected together.

Claim 25 (new): The variable drive current driver circuit according to claim 24, wherein said control circuit controls whether said third bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said fourth bias current driven by said fourth current source flows from said push-pull circuit.

Claim 26 (new): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;
a first current source circuit for having a first bias current flow to said pair of push-pull circuits;
a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

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a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said control signal is independent of drain voltages of the first to fourth current source circuits and independent of an input signal.

Claim 27 (new): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

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a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said first bias current is a constant current.

Claim 28 (new): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said second bias current is a constant current.

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Claim 29 (new): A variable drive current driver circuit, comprising:

- a pair of push-pull circuits for driving a load circuit complementarily;
 - a first current source circuit for having a first bias current flow to said pair of push-pull circuits;
 - a second current source circuit for having a second bias current flow from said pair of push-pull circuits;
 - a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;
 - a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and
 - a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,
- wherein each push-pull circuit comprises at least two conductive types of transistors, and
- wherein said third current source circuit provides a constant current.

Claim 30 (new): A variable drive current driver circuit, comprising:

- a pair of push-pull circuits for driving a load circuit complementarily;
- a first current source circuit for having a first bias current flow to said pair of push-pull circuits;
- a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

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a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said fourth current source circuit provides a constant current.

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